1. Employee Information

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **EmployeeID** | **EmployeeName** | **Department** | **ManagerID** | **Salary** | **HireDate** |
| 1 | John Smith | HR | 101 | 50000 | 2022-01-15 |
| 2 | Alice Brown | IT | 102 | 60000 | 2022-02-20 |
| 3 | Mark Johnson | Sales | 101 | 55000 | 2022-03-10 |

* Removing Partial Dependency:

|  |  |
| --- | --- |
| **EmployeeID** | **EmployeeName** |
| 1 | John Smith |
| 2 | Alice Brown |
| 3 | Mark Johnson |

* No transitive dependency
* Making it more efficient:

Employee Table

|  |  |
| --- | --- |
| **EmployeeID** | **EmployeeName** |
| 1 | John Smith |
| 2 | Alice Brown |
| 3 | Mark Johnson |

Department Table

|  |  |
| --- | --- |
| **Department\_Id** | **Department** |
| 001 | HR |
| 002 | IT |
| 003 | Sales |

Employee\_Mapping Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **EmployeeID** | **Department\_Id** | **ManagerID** | **Salary** | **HireDate** |
| 1 | 001 | 101 | 50000 | 2022-01-15 |
| 2 | 002 | 102 | 60000 | 2022-02-20 |
| 3 | 003 | 101 | 55000 | 2022-03-10 |

1. Training Programs

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ProgramID** | **ProgramName** | **Trainer** | **Department** | **EmployeeID** | **EmployeeName** | **Date** |
| 1 | Java Fundamentals | John Smith | IT | 101 | Alice Brown | 2022-03-01 |
| 2 | Project Management | Sarah White | HR | 102 | Bob Green | 2022-03-10 |
| 3 | Sales Techniques | Mark Johnson | Sales | 103 | Charlie Black | 2022-03-20 |

* Removing partial dependency

|  |  |  |
| --- | --- | --- |
| **ProgramID** | **ProgramName** | **Trainer** |
| 1 | Java Fundamentals | John Smith |
| 2 | Project Management | Sarah White |
| 3 | Sales Techniques | Mark Johnson |

* Removing transitive dependency

|  |  |
| --- | --- |
| **EmployeeID** | **EmployeeName** |
| 101 | Alice Brown |
| 102 | Bob Green |
| 103 | Charlie Black |

|  |  |  |  |
| --- | --- | --- | --- |
| **ProgramID** | **Department** | **EmployeeID** | **Date** |
| 1 | IT | 101 | 2022-03-01 |
| 2 | HR | 102 | 2022-03-10 |
| 3 | Sales | 103 | 2022-03-20 |

* Making it more efficient

Employee Table

|  |  |
| --- | --- |
| **EmployeeID** | **EmployeeName** |
| 101 | Alice Brown |
| 102 | Bob Green |
| 103 | Charlie Black |

Program Table

|  |  |  |
| --- | --- | --- |
| **ProgramID** | **ProgramName** | **Trainer** |
| 1 | Java Fundamentals | John Smith |
| 2 | Project Management | Sarah White |
| 3 | Sales Techniques | Mark Johnson |

Department Table

|  |  |
| --- | --- |
| **DepartmentID** | **DeptName** |
| D-101 | IT |
| D-102 | HR |
| D-103 | Sales |

Employee\_program\_mapping Table

|  |  |  |  |
| --- | --- | --- | --- |
| **ProgramID** | **DepartmentID** | **EmployeeID** | **Date** |
| 1 | D-101 | 101 | 2022-03-01 |
| 2 | D-102 | 102 | 2022-03-10 |
| 3 | D-103 | 103 | 2022-03-20 |

1. Customer orders

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **OrderID** | **CustomerName** | **ProductID** | **ProductName** | **Qty** | **UnitPrice** | **TotalAmount** | **OrderDate** |
| 1 | John Doe | 101 | Laptop | 2 | 800 | 1600 | 2022-01-15 |
| 2 | Jane Smith | 102 | Smartphone | 1 | 500 | 500 | 2022-02-20u |
| 3 | John Doe | 103 | Printer | 1 | 200 | 200 | 2022-03-10 |

* Removing partial dependency

Customer Table

|  |  |
| --- | --- |
| **Customer\_ID** | **CustomerName** |
| 1 | John Doe |
| 2 | Jane Smith |
| 3 | John Doe |

* Removing transitive dependency

Product Table

|  |  |  |
| --- | --- | --- |
| **ProductID** | **ProductName** | **UnitPrice** |
| 101 | Laptop | 800 |
| 102 | Smartphone | 500 |
| 103 | Printer | 200 |

* Making it more efficient

Customer Table

|  |  |
| --- | --- |
| **Customer\_ID** | **CustomerName** |
| 1 | John Doe |
| 2 | Jane Smith |
| 3 | John Doe |

Product Table

|  |  |  |
| --- | --- | --- |
| **ProductID** | **ProductName** | **UnitPrice** |
| 101 | Laptop | 800 |
| 102 | Smartphone | 500 |
| 103 | Printer | 200 |

Product\_Order\_mapping Table

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **OrderID** | **Customer\_ID** | **ProductID** | **Qty** | **TotalAmount** | **OrderDate** |
| 1 | 1 | 101 | 2 | 1600 | 2022-01-15 |
| 2 | 2 | 102 | 1 | 500 | 2022-02-20u |
| 3 | 3 | 103 | 1 | 200 | 2022-03-10 |

1. Stress management

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **EmployeeID** | **FirstName** | **LastName** | **StressLevel** | **HoursOfWork** | **BreaksTaken** | **PhysicalActivity** | **CounselingSessions** |
| 101 | Sarah | White | Moderate | 45 | 3 | Yoga | 2 |
| 102 | Bob | Green | High | 50 | 2 | Jogging | 1 |
| 103 | Charlie | Black | Low | 40 | 4 | Meditation | 3 |
| 104 | David | Miller | High | 48 | 1 | Gym | 2 |
| 105 | Jane | Doe | Moderate | 42 | 3 | Walking | 1 |

* Removing partial dependency

Employee Table

|  |  |  |
| --- | --- | --- |
| **EmployeeID** | **FirstName** | **LastName** |
| 101 | Sarah | White |
| 102 | Bob | Green |
| 103 | Charlie | Black |
| 104 | David | Miller |
| 105 | Jane | Doe |

Stress Table

|  |  |
| --- | --- |
| **StressLevelID** | **StressLevel** |
| 1 | Low |
| 2 | Moderate |
| 3 | High |

* + There is no transitive dependency in this case
  + Making it more efficient

**Employee Table**

|  |  |  |
| --- | --- | --- |
| **EmployeeID** | **FirstName** | **LastName** |
| 101 | Sarah | White |
| 102 | Bob | Green |
| 103 | Charlie | Black |
| 104 | David | Miller |
| 105 | Jane | Doe |

**Counseling Table**

|  |  |  |
| --- | --- | --- |
| **EmployeeID** | **PhysicalActivity** | **CounselingSessions** |
| 101 | Yoga | 2 |
| 102 | Jogging | 1 |
| 103 | Meditation | 3 |
| 104 | Gym | 2 |
| 105 | Walking | 1 |

**Stress Table**

|  |  |
| --- | --- |
| **StressLevelID** | **StressLevel** |
| 1 | Low |
| 2 | Moderate |
| 3 | High |

**Employee\_Stress\_mapping Table**

|  |  |  |  |
| --- | --- | --- | --- |
| **EmployeeID** | **StressLevelID** | **HoursOfWork** | **BreaksTaken** |
| 101 | 2 | 45 | 3 |
| 102 | 3 | 50 | 2 |
| 103 | 1 | 40 | 4 |
| 104 | 3 | 48 | 1 |
| 105 | 2 | 42 | 3 |

1. Flee Market

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ItemID** | **SellerName** | **ItemName** | **Category** | **Price** | **Quantity** | **Description** | **Condition** | **Location** | **DateListed** |
| 101 | John's Treasures | Vintage Chair | Furniture | 50.00 | 2 | Beautiful vintage chair, excellent condition | Like New | Booth 15, Section A | 2022-01-15 |
| 102 | Alice's Finds | Antique Clock | Home Decor | 80.00 | 1 | Authentic antique clock with Roman numerals | Good | Stall 8, Section B | 2022-02-20 |
| 103 | Mark's Collectibles | Vinyl Records | Music | 15.00 | 10 | Various artists and genres, in good condition | Used | Booth 20, Section C | 2022-03-10 |
| 104 | Emma's Treasures | Vintage Jewelry | Accessories | 35.00 | 5 | Assorted vintage jewelry pieces, unique designs | Excellent | Stall 12, Section D | 2022-04-05 |
| 105 | Robert's Finds | Retro Camera | Electronics | 60.00 | 1 | Vintage Polaroid camera with original case | Good | Booth 5, Section A | 2022-05-15 |

* Removing partial dependency

**Item Table**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ItemID** | **ItemName** | **Category** | **Price** | **Description** | **Condition** |
| 101 | Vintage Chair | Furniture | 50.00 | Beautiful vintage chair, excellent condition | Like New |
| 102 | Antique Clock | Home Decor | 80.00 | Authentic antique clock with Roman numerals | Good |
| 103 | Vinyl Records | Music | 15.00 | Various artists and genres, in good condition | Used |
| 104 | Vintage Jewelry | Accessories | 35.00 | Assorted vintage jewelry pieces, unique designs | Excellent |
| 105 | Retro Camera | Electronics | 60.00 | Vintage Polaroid camera with original case | Good |

**Seller Table**

|  |  |  |
| --- | --- | --- |
| **SellerID** | **SellerName** | **Location** |
| 101 | John's Treasures | Booth 15, Section A |
| 102 | Alice's Finds | Stall 8, Section B |
| 103 | Mark's Collectibles | Booth 20, Section C |
| 104 | Emma's Treasures | Stall 12, Section D |
| 105 | Robert's Finds | Booth 5, Section A |

* No transitive dependency in this table

Making this more efficient:

**Item Table**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ItemID** | **ItemName** | **Category** | **Price** | **Description** | **Condition** |
| 101 | Vintage Chair | Furniture | 50.00 | Beautiful vintage chair, excellent condition | Like New |
| 102 | Antique Clock | Home Decor | 80.00 | Authentic antique clock with Roman numerals | Good |
| 103 | Vinyl Records | Music | 15.00 | Various artists and genres, in good condition | Used |
| 104 | Vintage Jewelry | Accessories | 35.00 | Assorted vintage jewelry pieces, unique designs | Excellent |
| 105 | Retro Camera | Electronics | 60.00 | Vintage Polaroid camera with original case | Good |

**Seller Table**

|  |  |  |
| --- | --- | --- |
| **SellerID** | **SellerName** | **Location** |
| 101 | John's Treasures | Booth 15, Section A |
| 102 | Alice's Finds | Stall 8, Section B |
| 103 | Mark's Collectibles | Booth 20, Section C |
| 104 | Emma's Treasures | Stall 12, Section D |
| 105 | Robert's Finds | Booth 5, Section A |

**Item\_Seller\_Mapping Table**

|  |  |  |  |
| --- | --- | --- | --- |
| **ItemID** | **SellerID** | **Quantity** | **DateListed** |
| 101 | 101 | 2 | 2022-01-15 |
| 102 | 102 | 1 | 2022-02-20 |
| 103 | 103 | 10 | 2022-03-10 |
| 104 | 104 | 5 | 2022-04-05 |
| 105 | 105 | 1 | 2022-05-15 |

1. Learning Management System

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **CID** | **CourseName** | **Instructor** | **Department** | **Credits** | **Enrolled**  **Students** | **StartDate** | **EndDate** | **Location** | **Availability** |
| 101 | Introduction to Biology | Prof. Smith | Science | 3 | 25 | 2022-01-15 | 2022-05-10 | Room 101 | Open |
| 102 | Programming in Python | Prof. Brown | Computer Science | 4 | 30 | 2022-02-20 | 2022-06-15 | Lab 3, Building B | Closed |
| 103 | Financial Accounting | Prof. Green | Finance | 3 | 20 | 2022-03-10 | 2022-07-05 | Room 201 | Open |
| 104 | English Literature | Prof. White | Humanities | 3 | 22 | 2022-04-05 | 2022-08-20 | Room 301 | Open |
| 105 | Web Development Fundamentals | Prof. Black | IT | 4 | 28 | 2022-05-15 | 2022-09-25 | Lab 2, Building A | Closed |

* Remove partial dependency

**Instructor Table**

|  |  |
| --- | --- |
| **InstructorID** | **Instructor** |
| 1 | Prof. Smith |
| 2 | Prof. Brown |
| 3 | Prof. Green |
| 4 | Prof. White |
| 5 | Prof. Black |

**Department Table**

|  |  |
| --- | --- |
| **DepartmentID** | **Department** |
| 01 | Science |
| 02 | Computer Science |
| 03 | Finance |
| 04 | Humanities |
| 05 | IT |

* No Transitive dependency
* Making it more efficient

**Instructor Table**

|  |  |
| --- | --- |
| **InstructorID** | **Instructor** |
| 1 | Prof. Smith |
| 2 | Prof. Brown |
| 3 | Prof. Green |
| 4 | Prof. White |
| 5 | Prof. Black |

**Department Table**

|  |  |
| --- | --- |
| **DepartmentID** | **Department** |
| 01 | Science |
| 02 | Computer Science |
| 03 | Finance |
| 04 | Humanities |
| 05 | IT |

**Learning\_Management\_Mapping Table**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **CID** | **CourseName** | **InstructorId** | **DepartmentID** | **Credits** | **Enrolled**  **Students** | **StartDate** | **EndDate** | **Location** | **Availability** |
| 101 | Introduction to Biology | 1 | 01 | 3 | 25 | 2022-01-15 | 2022-05-10 | Room 101 | Open |
| 102 | Programming in Python | 2 | 02 | 4 | 30 | 2022-02-20 | 2022-06-15 | Lab 3, Building B | Closed |
| 103 | Financial Accounting | 3 | 03 | 3 | 20 | 2022-03-10 | 2022-07-05 | Room 201 | Open |
| 104 | English Literature | 4 | 04 | 3 | 22 | 2022-04-05 | 2022-08-20 | Room 301 | Open |
| 105 | Web Development Fundamentals | 5 | 05 | 4 | 28 | 2022-05-15 | 2022-09-25 | Lab 2, Building A | Closed |